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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,592	02/20/2004	Akio Atsuta	CFA00054US	1586
7590 10/19/2005			EXAMINER	
Canon U.S.A. Inc. Intellectual Property Department 15975 Alton Parkway Irvine, CA 92618-3731			WYATT, KEVIN S	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/783,592

Applicant(s)

ATSUTA ET AL.

Examiner

Kevin Wyatt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. Figures 9-10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 2 is objected to because of the following informalities:

In claim 2, line 1, "A" should be changed to --An--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6, is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, line 3, limitation "movable photoreceptor elements" is not clear. It is not clear whether the photoreceptor elements physically change location during operation or if movement is indicated by processing circuits through phase shifts in signals from the light emitters. Further clarification is needed.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Haas (U.S. Publication No. 20020000514 A1).

Regarding claim 1, Haas shows in Fig 1A a scale (2, i.e., grid plate) having an optical grating; a plurality of photoreceptor elements (contained within photo receiver (3)) that are movable with respect to the scale and that are disposed relation pitch of the optical grating; light source means (1, i.e., emission device) having at least two light sources for irradiating the photoreceptor elements through the scale by using light rays from at least two different directions; and control means (7, i.e., control device) for switching light-emitting status of the at least two light sources; wherein the control means (combination of control device (7) and evaluation circuit (4)) obtains relative-position information of the scale and the photoreceptor elements by processing information obtained from the light-emitting status of the light sources when the light-emitting status of the light sources is switched (paragraph 0028, lines 8-11, and paragraph 0029, lines 9-11).

Regarding claim 2, Haas discloses that one of the at least two light sources is selectively caused to emit light, and wherein the relative-position information is obtained based on photoreception signals received by the photoreceptor elements response to the light emitted (paragraph 0028, lines 5-10).

Regarding claim 3, Haas discloses that a light-emitting position of the light sources is changed when movement of the scale is stopped (when the grid disk (2) is stationary, laser diodes (11) and (12) emit pulses at the same intensity, however, when grid disk is in motion one of the laser diodes is shadowed by grid disk (2) thus altering the light emitting position of the laser diodes), and wherein the relative- position information is obtained from information detected by the photoreceptor elements when the light-emitting position of the light sources is changed (since evaluation circuit (4) determines speed and length of movement, if grid disk (2) is stationary, there is no modulation frequency when grid disk (2) is stationary which indicates no change in relative position) (paragraph 0027, lines 4-7 and paragraph 0029, lines 1-9).

Regarding claim 4, Haas discloses that intensities of light emitted by the at least two light sources are changed (the intensities of both laser diodes are equal when grid disk (2) is stationary, and one laser diode has a decreased intensity during motion) when movement of the scale is stopped, and the relative-position information is obtained from information detected by the photoreceptor elements when the intensities of light emitted are changed (since evaluation circuit (4) determines speed and length of movement, if grid disk (2) is stationary, only when grid disk (2) is stationary the intensities of laser diodes (11) and (12) are equal and there is there is no modulation

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frequency which indicates no change in relative position) (paragraph 0027, lines 4-7 and paragraph 0029, lines 1-9).

Regarding claim 5, Haas shows in Fig. 2 that signals having at least two different phases are obtainable by the plurality of photoreceptor elements when the at least two light sources are switched (col. 28, lines 1-5).

Regarding claim 6, Haas shows in Fig. 1A, a scale having an optical grating (2, i.e., grid plate); a plurality of movable photoreceptor elements (3, i.e., photoreceiver) wherein each photoreceptor element is positioned based on a pitch of the optical grating; first light source (11, i.e., laser diode) and a second light source (11, i.e., laser diode) providing light to the photoreceptor elements, wherein the first light source provides light a first direction, and wherein the second light source provides light in second direction; and a switch (combination of control device(7) and evaluation circuit (6)) for controlling the light-emitting status the first light source and the second light source, wherein the switch capable of using the light emitting status of the first and the second light sources to acquire relative-position information of the scale and the photoreceptor elements.

Regarding claim 7, Haas discloses that intensities of lights emitted by the first light source and the second light source are changed when movement of the scale is stopped (only when grid disk (2) is stationary the intensities of laser diodes (11) and (12) are equal), and the relative-position information is obtained by detecting the change intensities of lights emitted (paragraph 0028, lines 3-11).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Swanson (U.S. Patent No. 5,750,983) discloses a meter sensor light tamper detector.

Ohtomo (U.S. Patent No. 6,093,928) discloses position measuring rotary incremental optical encoder.

Yamamoto (Publication No. U.S. 2002/0014581 A1) discloses an optical encoder and optical rotary encoder.

Feichtinger (U.S. Patent No. 6,410,910 B1) discloses an angle measuring system.

Igaki (Publication No. U.S. 2003/0218125 A1) discloses a roof mirror/roof prism array scale and apparatus equipped with sensor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

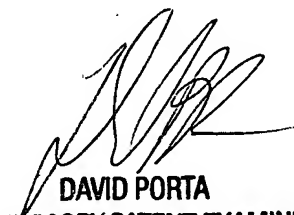
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571)-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



K.W.



DAVID PORTA
SENIOR PATENT EXAMINER
BIOLOGY CENTER 2800